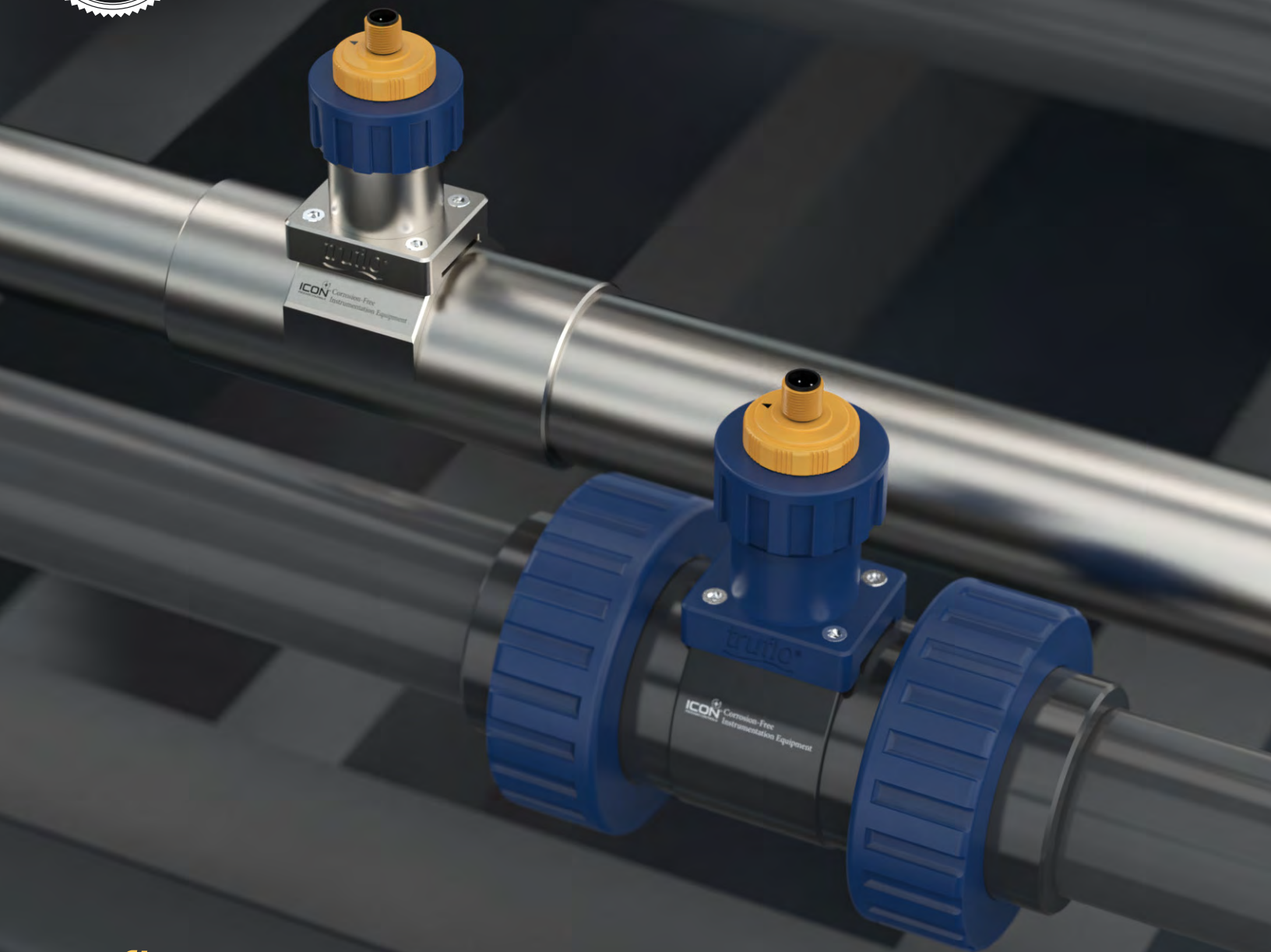


# Truflo® — TIW | TI3W Series Insertion Paddle Wheel Flow Meter Sensor

**ICON**™ Corrosion-Free  
PROCESS CONTROLS Instrumentation Equipment™

Frequency Pulse Output



*truflo*®

## Industry's **Longest Lasting** Paddle Wheel Flow Meter

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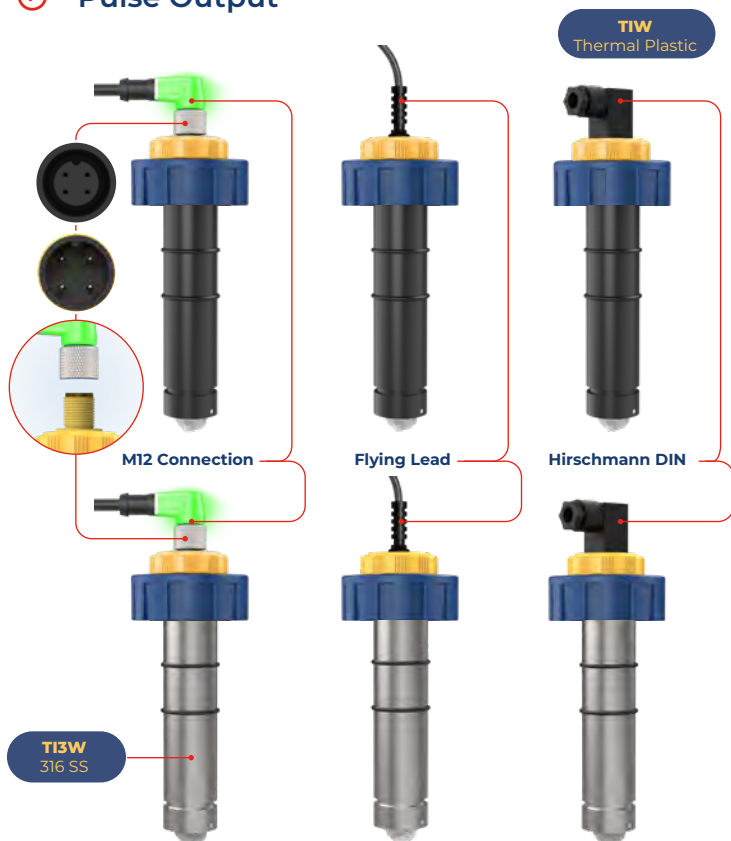
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# Truflo® — TIW | TI3W Series

## Insertion Paddle Wheel Flow Meter Sensor

**ICON**™ Corrosion-Free  
PROCESS CONTROLS Instrumentation Equipment™

- ✓ Lifetime Warranty
- ✓ ½" – 24" Line Sizes
- ✓ Pulse Output



### Features

- ✓ M12 | Flying Lead | Hirschmann DIN
- ✓ Industry's Highest Accuracy:  $\pm 0.5\%$  F.S
- ✓ Retrofits into Signet® Type Fittings
- ✓ Double O-Ring Seal
- ✓ Available in PVC | PP | PVDF | 316SS

### Industry's Most Accurate & Reliable Paddle Wheel Flow Meter Sensors

The TIW digital flow meter sensors are easy to install with exceptional guaranteed long-life performance and have been engineered to provide long-term accurate flow measurement in tough industrial applications.

The paddle wheel assembly consists of an engineered high performance Tefzel® paddle and micro-polished zirconium ceramic rotor pin and bushings, providing excellent chemical and wear resistant properties.

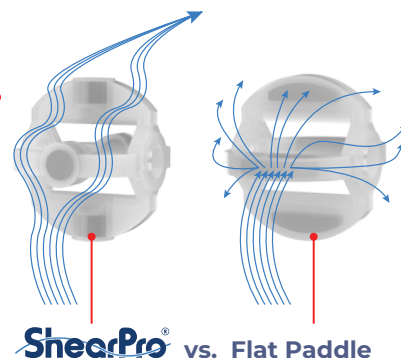
The TIW Series paddle wheel flow meter sensors are highly repeatable, exceptionally accurate, extremely rugged, offer outstanding value and require absolutely no maintenance.

The TIW flow meter sensors can be installed using Truflo's® extensive line of ANSI and DIN fittings. Truflo® offers SDR Pipe Saddles from DN15 - DN600 in GFPP material.

### Revolutionary New ShearPro® Design

- ✓ Contoured Flow Profile
- ✓ Reduced Turbulence = Increased Longevity
- ✓ 78% Less Drag than Old Flat Paddle Design\*

\*Ref: NASA "Shape Effects on Drag"



### Tefzel® Paddle Wheel

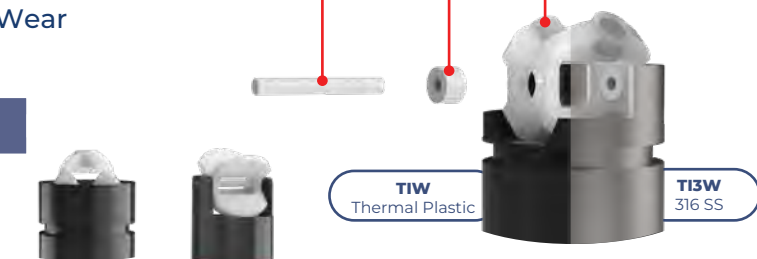
- ✓ Superior Chemical & Wear Resistance vs. PVDF

### Zirconium Ceramic Rotor | Bushings

- ✓ Up to 15x the Wear Resistance
- ✓ Integral Rotor Bushings Reduce Wear and Fatigue Stress

### 360° Shielded Rotor Design

- ✓ Eliminates Finger Spread
- ✓ No Lost Paddles



ShearPro® vs. Competitor



On Paddle Wheel Assembly

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# Truflo® — TIW | TI3W Series

## Insertion Paddle Wheel Flow Meter Sensor



### Technical Specifications

| General                                                                     |                                                      |                                  |
|-----------------------------------------------------------------------------|------------------------------------------------------|----------------------------------|
| Operating Range                                                             | 0.3 to 33 ft/s                                       | 0.1 to 10 m/s                    |
| Pipe Size Range                                                             | ½ to 24"                                             | DN15 to DN600                    |
| Linearity                                                                   | ±0.5% of F.S @ 25°C   77°F                           |                                  |
| Repeatability                                                               | ±0.5% of F.S @ 25°C   77°F                           |                                  |
| Output Type                                                                 | NPN or PNP with 4.7K pull high resistor              |                                  |
| Output Current                                                              | 150mA with short circuit protection                  |                                  |
| Wetted Materials                                                            |                                                      |                                  |
| Sensor Body                                                                 | PVC (Dark)   PP (Pigmented)   PVDF (Natural)   316SS |                                  |
| O-Rings                                                                     | FKM   EPDM*   FFKM*                                  |                                  |
| Rotor Pin   Bushings                                                        | Zirconium Ceramic   ZrO₂                             |                                  |
| Paddle   Rotor                                                              | ETFE Tefzel®                                         |                                  |
| Electrical                                                                  |                                                      |                                  |
| Frequency                                                                   | 49 Hz per m/s nominal                                | 15 Hz per ft/s nominal           |
| Supply Voltage                                                              | 5-30 VDC ±10% regulated                              |                                  |
| Supply Current                                                              | <1.5 mA @ 3.3 to 6 VDC                               | <20 mA @ 6 to 24 VDC             |
| Max. Temperature/Pressure Rating – Standard and Integral Sensor   Non-Shock |                                                      |                                  |
| PVC                                                                         | 180 Psi @ 68°F   40 Psi @ 140°F                      | 12.5 Bar @ 20°C   2.7 Bar @ 60°F |
| PP                                                                          | 180 Psi @ 68°F   40 Psi @ 190°F                      | 12.5 Bar @ 20°C   2.7 Bar @ 88°F |
| PVDF                                                                        | 200 Psi @ 68°F   40 Psi @ 240°F                      | 14 Bar @ 20°C   2.7 Bar @ 115°F  |
| 316SS                                                                       | 200 Psi @ 180°F   40 Psi @ 300°F                     | 14 Bar @ 82°C   2.7 Bar @ 148°F  |
| Operating Temperature                                                       |                                                      |                                  |
| PVC                                                                         | 32°F to 140°F                                        | 0°C to 60°C                      |
| PP                                                                          | -4°F to 190°F                                        | -20°C to 88°C                    |
| PVDF                                                                        | -40°F to 240°F                                       | -40°C to 115°C                   |
| 316SS                                                                       | -40°F to 300°F                                       | -40°C to 148°C                   |
| Output                                                                      |                                                      |                                  |
| Pulse                                                                       |                                                      |                                  |
| Display                                                                     |                                                      |                                  |
| Blind                                                                       |                                                      |                                  |
| Standards and Approvals                                                     |                                                      |                                  |
| CE   FCC   RoHS Compliant                                                   |                                                      |                                  |

See Temperature and Pressure Graphs for more information

\*Optional

### Model Selection

| PVC   PP   PVDF |             |          |
|-----------------|-------------|----------|
| Size            | Part Number | Material |
| ½" - 4"         | TIW-P-S     | PVC      |
| 6" - 24"        | TIW-P-L     | PVC      |
| 1" - 4"         | TIW-PP-S    | PP       |
| 6" - 24"        | TIW-PP-L    | PP       |
| 1" - 4"         | TIW-PF-S    | PVDF     |
| 6" - 24"        | TIW-PF-L    | PVDF     |

Add Suffix -  
'E' - EPDM Seals

| 316 SS   |             |          |
|----------|-------------|----------|
| Size     | Part Number | Material |
| ½" - 4"  | TI3W-SS-S   | 316 SS   |
| 6" - 24" | TI3W-SS-L   | 316 SS   |

Add Suffix -  
'E' - EPDM Seals

# Truflo® — TIW | TI3W Series

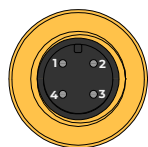
## Insertion Paddle Wheel Flow Meter Sensor

**ICON**™ Corrosion-Free  
PROCESS CONTROLS Instrumentation Equipment™

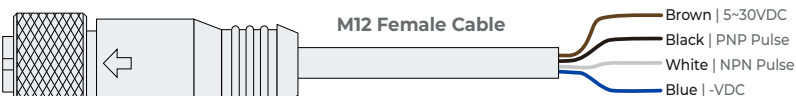
### Terminal Connections

**M12 Connection** (no Internal wiring required)

| Terminal | Description | Color |
|----------|-------------|-------|
| 1        | 5~30 VDC    | Brown |
| 2        | - VDC       | Blue  |
| 3        | PNP Output  | Black |
| 4        | NPN Output  | White |

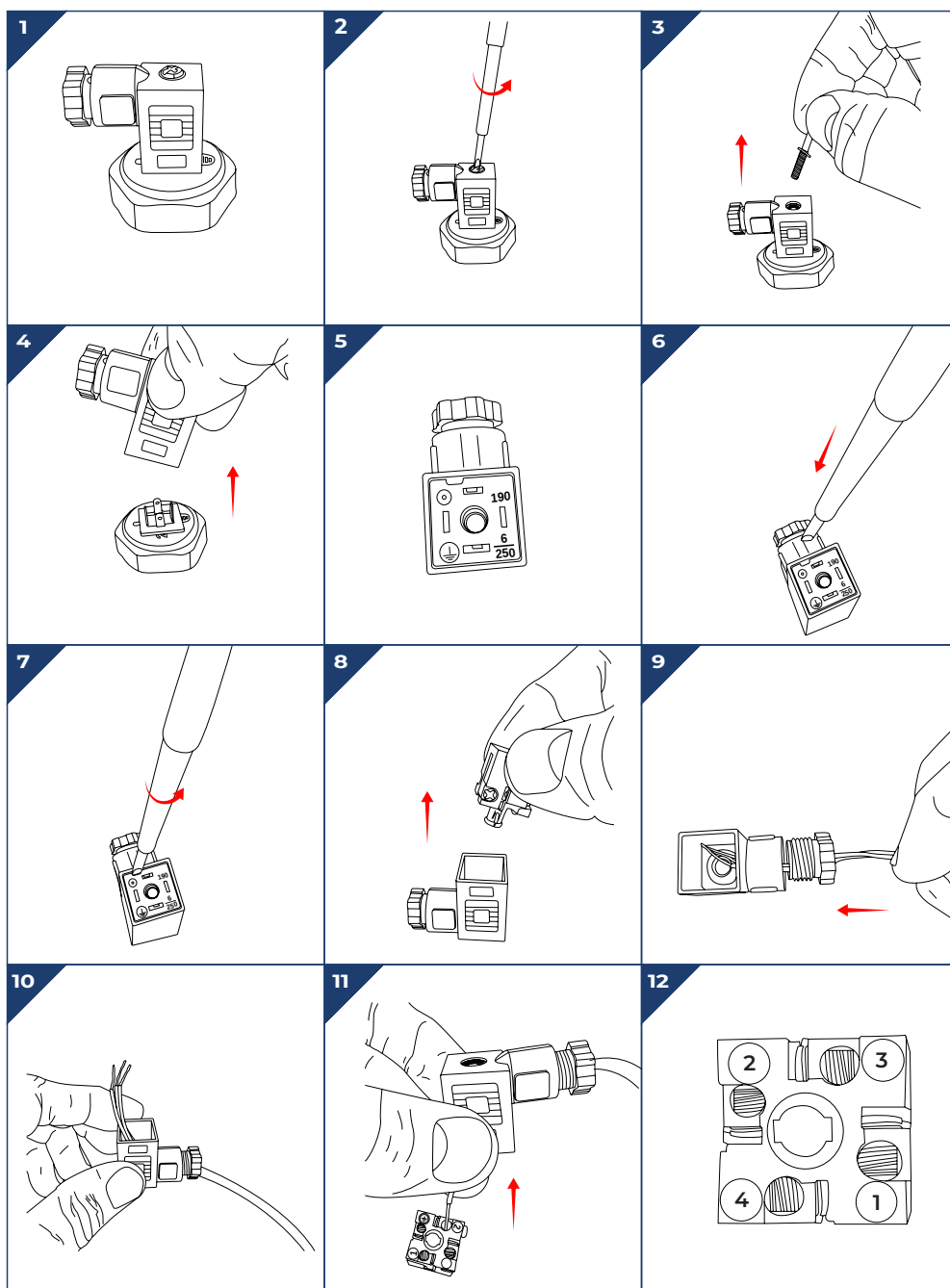


TIW - M12 Male



### Hirschmann DIN Connection

| Terminal | Description |
|----------|-------------|
| 1        | 5~30 VDC    |
| 2        | - VDC       |
| 3        | PNP Output  |
| 4        | NPN Output  |



# Truflo® — TIW | TI3W Series

## Insertion Paddle Wheel Flow Meter Sensor

**ICON**™ Corrosion-Free  
PROCESS CONTROLS Instrumentation Equipment™

### Fittings and K-Factor

#### TEE FITTINGS

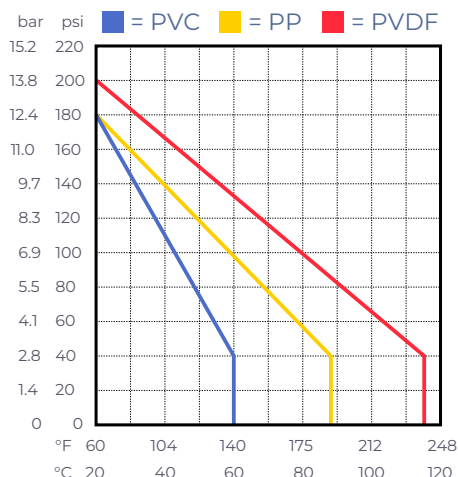


| Tee Fitting |     | K-Factor |        | Sensor Length |
|-------------|-----|----------|--------|---------------|
| IN          | DN  | LPM      | GPM    |               |
| ½" (V1)     | 15  | 156.1    | 593.0  | S             |
| ½" (V2)     | 15  | 267.6    | 1013.0 | S             |
| ¾"          | 20  | 160.0    | 604.0  | S             |
| 1"          | 25  | 108.0    | 408.0  | S             |
| 1½"         | 40  | 37.0     | 140.0  | S             |
| 2"          | 50  | 21.6     | 81.7   | S             |
| 2½"         | 65  | 14.4     | 54.4   | S             |
| 3"          | 80  | 9.3      | 35.0   | S             |
| 4"          | 100 | 5.2      | 19.8   | S             |

#### TEE FITTINGS (V2)

| Size | K-Factor |
|------|----------|
| ½"   | 282.0    |
| ¾"   | 196.0    |
| 1"   | 136.0    |
| 1½"  | 43.2     |
| 2"   | 23.2     |

### Pressure vs. Temperature



**Note:** During system design the specifications of all components must be considered. | Non-Shock

#### CLAMP-ON SADDLES



| Clamp Saddles |     | K-Factor |      | Sensor Length |
|---------------|-----|----------|------|---------------|
| IN            | DN  | LPM      | GPM  |               |
| 2"            | 50  | 21.6     | 81.7 | S             |
| 3"            | 80  | 9.3      | 35.0 | S             |
| 4"            | 100 | 5.2      | 19.8 | S             |
| 6"            | 150 | 2.4      | 9.2  | L             |
| 8"            | 200 | 1.4      | 5.2  | L             |

#### CPVC SOCKET WELD-ON ADAPTERS

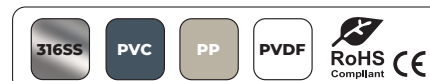


| Weld On Adapter |      | K-Factor |      | Sensor Length |
|-----------------|------|----------|------|---------------|
| IN              | DN   | LPM      | GPM  |               |
| 2"              | 50   | 14.4     | 54.4 | S             |
| 2½"             | 65   | 9.3      | 35.5 | S             |
| 3"              | 80   | 9.3      | 35.0 | S             |
| 4"              | 100  | 5.2      | 19.8 | S             |
| 6"              | 150  | 2.4      | 9.2  | L             |
| 8"              | 200  | 1.4      | 5.2  | L             |
| 10"             | 250  | 0.91     | 3.4  | L             |
| 12"             | 300  | 0.65     | 2.5  | L             |
| 14"             | 400  | 0.5      | 1.8  | L             |
| 16"             | 500  | 0.4      | 1.4  | L             |
| 18"             | 600  | 0.3      | 1.1  | L             |
| 20"             | 800  | 0.23     | 0.9  | L             |
| 24"             | 1000 | 0.16     | 0.6  | L             |



### Min/Max Flow Rates

| Pipe Size<br>(O.D.) | LPM   GPM    | LPM   GPM        |
|---------------------|--------------|------------------|
|                     | 0.3m/s min.  | 10m/s max        |
| ½"   DN15           | 3.5   1.0    | 120.0   32.0     |
| ¾"   DN20           | 5.0   1.5    | 170.0   45.0     |
| 1"   DN25           | 9.0   2.5    | 300.0   79.0     |
| 1 ½"   DN40         | 25.0   6.5   | 850.0   225.0    |
| 2"   DN50           | 40.0   10.5  | 1350.0   357.0   |
| 2 ½"   DN60         | 60.0   16.0  | 1850.0   357.0   |
| 3"   DN80           | 90.0   24.0  | 2800.0   739.0   |
| 4"   DN100          | 125.0   33.0 | 4350.0   1149.0  |
| 6"   DN150          | 230.0   60.0 | 7590.0   1997.0  |
| 8"   DN200          | 315.0   82.0 | 10395.0   2735.0 |



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### Installation Fittings



#### SA Clamp-On Saddle Fittings

- PVC Material
- Viton® O-Rings
- Available in Metric DIN
- Will Accept Signet® Type Flow Meter

| PVC  |             |
|------|-------------|
| Size | Part Number |
| 2"   | SA020       |
| 3"   | SA030       |
| 4"   | SA040       |
| 6"   | SA060       |
| 8"   | SA080       |



#### PT | PPT | PFT Installation Fittings

- PVC | PP | PVDF
- Socket End Connections
- Will Accept Signet® Type Flow Meter
- True-Union Design

|      | PVDF        | PVC         | PP          |
|------|-------------|-------------|-------------|
| Size | Part Number | Part Number | Part Number |
| 1½"  | PFT005      | PT005       | PPT005      |
| ¾"   | PFT007      | PT007       | PPT007      |
| 1"   | PFT010      | PT010       | PPT010      |
| 1½"  | PFT015      | PT015       | PPT015      |
| 2"   | PFT020      | PT020       | PPT020      |

Add Suffix -

'E' - EPDM Seals

'T' - NPT End Connectors

'B' - Butt Fused End Connections for PP or PVDF



#### SAR Clamp-On Saddle Fittings (SDR Pipe)

- PVC Material
- Viton® O-Rings
- Available in Metric DIN
- Will Accept Signet® Type Flow Meter

| PVC  |             |
|------|-------------|
| Size | Part Number |
| 2"   | SAR020      |
| 3"   | SAR030      |
| 4"   | SAR040      |
| 6"   | SAR060      |
| 8"   | SAR080      |
| 10"  | SAR100      |
| 12"  | SAR120      |
| 14"  | SAR140      |
| 16"  | SAR160      |



#### CT CPVC Tee Installation Fitting

- 1"-4" Pipe Sizes
- Easy to Install
- Will Accept Signet® Flow Meter

| CPVC |             |
|------|-------------|
| Size | Part Number |
| 1"   | CT010       |
| 1 ½" | CT015       |
| 2"   | CT020       |
| 3"   | CT030       |
| 4"   | CT040       |

Add Suffix -

'E' - EPDM Seals

'T' - NPT End Connectors

'B' - Butt Fused End Connections for PP or PVDF



#### PG Glue-On Adapter

- 2"-24" Pipe Sizes
- Easy to Install
- Will Accept Signet® Flow Meter

| Glue-On Adapter – CPVC |             |
|------------------------|-------------|
| Size                   | Part Number |
| 2" - 4"                | PG4         |
| 6" - 24"               | PG24        |

# Truflo® — TIW | TI3W Series

## Insertion Paddle Wheel Flow Meter Sensor

**ICON**™ Corrosion-Free  
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### SWOL Weld-On Adapter

- 2"-12" Pipe Sizes
- 316SS Weld-o-let with PVDF insert
- Easy to Install
- Will Accept Signet® Flow Meter

| Weld-On Adapter - 316 SS |             |
|--------------------------|-------------|
| Size                     | Part Number |
| 3"                       | SWOL3       |
| 4"                       | SWOL4       |
| 6"                       | SWOL6       |
| 8"                       | SWOL8       |
| 10"                      | SWOL10      |
| 12"                      | SWOL12      |



### SST 316SS TI3 Series NPT Tee Fittings

- Will Accept Signet® Type Flow Meter

| Threaded Tee Fitting - 316 SS |             |
|-------------------------------|-------------|
| Size                          | Part Number |
| ½"                            | SST005      |
| ¾"                            | SST007      |
| 1"                            | SST010      |
| 1 ½"                          | SST015      |
| 2"                            | SST020      |
| 3"                            | SST030      |
| 4"                            | SST040      |



### SSS 316SS TI3 Series Sanitary Tee Fittings

- Will Accept Signet® Type Flow Meter

| Sanitary Tee Fitting - 316 SS |             |
|-------------------------------|-------------|
| Size                          | Part Number |
| ½"                            | SSS005      |
| ¾"                            | SSS007      |
| 1"                            | SSS010      |
| 1 ½"                          | SSS015      |
| 2"                            | SSS020      |
| 3"                            | SSS030      |
| 4"                            | SSS040      |



### SSF 316SS TI3 Series Flanged Tee Fittings

- Will Accept Signet® Type Flow Meter

| Flanged Tee Fitting - 316 SS |             |
|------------------------------|-------------|
| Size                         | Part Number |
| ½"                           | SSF005      |
| ¾"                           | SSF007      |
| 1"                           | SSF010      |
| 1 ½"                         | SSF015      |
| 2"                           | SSF020      |
| 3"                           | SSF030      |
| 4"                           | SSF040      |